

Appl. No. 10/802,545

Response Dated January 16, 2007

Reply to Final Office Action Dated November 13, 2006

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application.

Listing of Claims:

Please amend the claims as follows without prejudice. No new matter has been added by way of these amendments.

We claim:

1. (Previously Presented) A method of well planning in a well planning system in response to input data including wellbore geometry and wellbore trajectory requirements, comprising the step of:

generating a summary of a drillstring in each hole section of a wellbore in response to said input data.
2. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore comprises the step of: generating an outer diameter of a first drill collar of said drillstring.
3. (Previously Presented) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a second drill collar of said drillstring.
4. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a heavy weight of said drillstring.
5. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a drill pipe of said drillstring.

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6. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a maximum weight of a weight-on-bit in each hole section of said drill string.
7. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a first drill collar of said drillstring.
8. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a second drill collar of said drillstring.
9. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a heavy weight of said drillstring.
10. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a first drill collar of said drillstring.
11. (Previously Presented) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a second drill collar of said drillstring.
12. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a heavy weight of said drillstring.
13. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a drill pipe of said drillstring.

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14. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a tensile risk of said drillstring.
15. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a cost figure associated with said drillstring.
16. (original) The method of claim 1, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a kick tolerance associated with said drillstring.
17. (original) The method of claim 2, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a second drill collar of said drillstring.
18. (original) The method of claim 17, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a heavy weight of said drillstring.
19. (original) The method of claim 18, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a drill pipe of said drillstring.
20. (original) The method of claim 19, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a maximum weight of a weight-on-bit in each hole section of said drill string.
21. (original) The method of claim 20, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a first drill collar of said drillstring.

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22. (original) The method of claim 21, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a second drill collar of said drillstring.
23. (original) The method of claim 22, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a heavy weight of said drillstring.
24. (original) The method of claim 23, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a first drill collar of said drillstring.
25. (original) The method of claim 24, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a second drill collar of said drillstring.
26. (original) The method of claim 25, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a heavy weight of said drillstring.
27. (original) The method of claim 26, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a drill pipe of said drillstring.
28. (original) The method of claim 27, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a tensile risk of said drillstring.
29. (original) The method of claim 28, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a cost figure associated with said drillstring.

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30. (original) The method of claim 29, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a kick tolerance associated with said drillstring.

31. (original) A program storage device readable by a machine tangibly embodying a program of instructions executable by the machine to perform method steps for well planning in a well planning system in response to input data including wellbore geometry and wellbore trajectory requirements, said method steps comprising:

generating a summary of a drillstring in each hole section of a wellbore in response to said input data.

32. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore comprises the step of: generating an outer diameter of a first drill collar of said drillstring.

33. (Previously Presented) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a second drill collar of said drillstring.

34. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a heavy weight of said drillstring.

35. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a drill pipe of said drillstring.

36. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a maximum weight of a weight-on-bit in each hole section of said drill string.

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37. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a first drill collar of said drillstring.
38. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a second drill collar of said drillstring.
39. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a heavy weight of said drillstring.
40. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a first drill collar of said drillstring.
41. (Previously Presented) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a second drill collar of said drillstring.
42. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a heavy weight of said drillstring.
43. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a drill pipe of said drillstring.
44. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a tensile risk of said drillstring.

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45. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a cost figure associated with said drillstring.
46. (original) The program storage device of claim 31, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a kick tolerance associated with said drillstring.
47. (original) The program storage device of claim 32, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a second drill collar of said drillstring.
48. (original) The program storage device of claim 47, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a heavy weight of said drillstring.
49. (original) The program storage device of claim 48, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating an outer diameter of a drill pipe of said drillstring.
50. (original) The program storage device of claim 49, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a maximum weight of a weight-on-bit in each hole section of said drill string.
51. (original) The program storage device of claim 50, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a first drill collar of said drillstring.
52. (original) The program storage device of claim 51, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a second drill collar of said drillstring.

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53. (original) The program storage device of claim 52, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a weight of a heavy weight of said drillstring.
54. (original) The program storage device of claim 53, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a first drill collar of said drillstring.
55. (Previously Presented) The program storage device of claim 54, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a second drill collar of said drillstring.
56. (original) The program storage device of claim 55, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a heavy weight of said drillstring.
57. (original) The program storage device of claim 56, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a length of a drill pipe of said drill string.
58. (original) The program storage device of claim 57, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a tensile risk of said drillstring.
59. (original) The program storage device of claim 58, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a cost figure associated with said drillstring.
60. (original) The program storage device of claim 59, wherein the step of generating a summary of a drillstring in each hole section of a wellbore further comprises the step of: generating a kick tolerance associated with said drillstring.
61. (original) The method of claim 1, further comprising the step of:

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recording or displaying at least a portion of said summary of said drillstring in said each hole section of said wellbore on a recorder or display device.

62. (original) The method of claim 61, wherein the step of recording or displaying at least a portion of said summary of said drillstring in said each hole section of said wellbore on a recorder or display device is selected from a group consisting of:

recording or displaying an outer diameter of a first drill collar of said drillstring;

recording or displaying an outer diameter of a second drill collar of said drillstring;

recording or displaying an outer diameter of a heavy weight of said drillstring;

recording or displaying an outer diameter of a drill pipe of said drillstring;

recording or displaying a maximum weight of a weight-on-bit in each hole section of said drill string;

recording or displaying a weight of a first drill collar of said drillstring; recording or displaying a weight of a second drill collar of said drillstring;

recording or displaying a weight of a heavy weight of said drillstring;

recording or displaying a length of a first drill collar of said drillstring;

recording or displaying a length of a second drill collar of said drillstring;

recording or displaying a length of a heavy weight of said drillstring;

recording or displaying a length of a drill pipe of said drillstring;

recording or displaying a tensile risk of said drillstring; recording or displaying a cost figure associated with said drillstring; and

recording or displaying a kick tolerance associated with said drillstring.

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63. (original) The program storage device of claim 31, further comprising the step of: recording or displaying at least a portion of said summary of said drillstring in said each hole section of said wellbore on a recorder or display device.

64. (original) The program storage device of claim 62, wherein the step of recording or displaying at least a portion of said summary of said drillstring in said each hole section of said wellbore on a recorder or display device is selected from a group consisting of: recording or displaying an outer diameter of a first drill collar of said drillstring; recording or displaying an outer diameter of a second drill collar of said drillstring; recording or displaying an outer diameter of a heavy weight of said drillstring; recording or displaying an outer diameter of a drill pipe of said drillstring; recording or displaying a maximum weight of a weight-on-bit in each hole section of said drill string; recording or displaying a weight of a first drill collar of said drillstring; recording or displaying a weight of a second drill collar of said drillstring; recording or displaying a weight of a heavy weight of said drillstring; recording or displaying a length of a first drill collar of said drillstring; recording or displaying a length of a second drill collar of said drillstring; recording or displaying a length of a heavy weight of said drillstring; recording or displaying a length of a drill pipe of said drillstring; recording or displaying a tensile risk of said drillstring; recording or displaying a cost figure associated with said drillstring; and recording or displaying a kick tolerance associated with said drillstring.

65. (original) A method of generating and recording or displaying drillstring design output data associated with a drillstring in a wellbore in response to input data including wellbore geometry and wellbore trajectory requirements, comprising the steps of:

generating a summary of the drillstring in each hole section of a wellbore in response to said input data, the summary of the drillstring in each hole section of said wellbore being selected from a group consisting of:

an outer diameter of a first drill collar of said drillstring, an outer diameter of a second drill collar of said drillstring, an outer diameter of a heavy weight of said drillstring, an outer diameter of a drill pipe of said drillstring, a maximum weight

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of a weight-on-bit in each hole section of said drill string, a weight of a first drill collar of said drillstring, a weight of a second drill collar of said drillstring, a weight of a heavy weight of said drillstring, a length of a first drill collar of said drillstring, a length of a second drill collar of said drillstring, a length of a heavy weight of said drillstring, a length of a drill pipe of said drillstring, a tensile risk of said drillstring, a cost figure associated with said drillstring, and a kick tolerance associated with said drillstring; and

recording or displaying said summary of said drill string in said each hole section of said wellbore.

66. (original) A program storage device readable by a machine tangibly embodying a program of instructions executable by the machine to perform method steps for generating and recording or displaying drillstring design output data associated with a drillstring in a wellbore in response to input data including wellbore geometry and wellbore trajectory requirements, said method steps comprising:

generating a summary of the drillstring in each hole section of a wellbore in response to said input data, the summary of the drillstring in each hole section of said wellbore being selected from a group consisting of:

an outer diameter of a first drill collar of said drillstring, an outer diameter of a second drill collar of said drillstring, an outer diameter of a heavy weight of said drillstring, an outer diameter of a drill pipe of said drillstring, a maximum weight of a weight-on-bit in each hole section of said drill string, a weight of a first drill collar of said drillstring, a weight of a second drill collar of said drillstring, a weight of a heavy weight of said drillstring, a length of a first drill collar of said drillstring, a length of a second drill collar of said drillstring, a length of a heavy weight of said drillstring, a length of a drill pipe of said drillstring, a tensile risk of said drillstring, a cost figure associated with said drillstring, and a kick tolerance associated with said drillstring; and

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recording or displaying said summary of said drill string in said each hole section of said wellbore.

67. (original) A system adapted for generating and recording or displaying drillstring design output data associated with a drillstring in a wellbore in response to input data including wellbore geometry and wellbore trajectory requirements, comprising:

apparatus adapted for generating a summary of the drillstring in each hole section of a wellbore in response to said input data, the summary of the drillstring in each hole section of said wellbore being selected from a group consisting of:

an outer diameter of a first drill collar of said drillstring, an outer diameter of a second drill collar of said drillstring, an outer diameter of a heavy weight of said drillstring, an outer diameter of a drill pipe of said drillstring, a maximum weight of a weight-on-bit in each hole section of said drill string, a weight of a first drill collar of said drillstring, a weight of a second drill collar of said drillstring, a weight of a heavy weight of said drillstring, a length of a first drill collar of said drillstring, a length of a second drill collar of said drillstring, a length of a heavy weight of said drillstring, a length of a drill pipe of said drillstring, a tensile risk of said drillstring, a cost figure associated with said drillstring, and a kick tolerance associated with said drillstring; and

recorder or display apparatus adapted for recording or displaying said summary of said drill string in said each hole section of said wellbore.